

# SEQUENCE LISTING

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Inoue, Shujiro

<120> NOVEL ACTIN-RELATED CYTOSKELETAL PROTEIN  
"LACS"

<130> 082368-003100US

<150> PCT/JP03/03613

<151> 2003-03-25

<150> JP 2002-255442

<151> 2002-08-30

<160> 2

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 3302

<212> PRT

<213> Rattus rattus

<400> 1

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Leu	Ala	Lys	Met	Lys	Arg	Gln	Phe	Glu	Lys	Asp	Glu	Met	Thr	Ser	Thr
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Cys	Asn	Ala	Phe	Ser	Glu	Tyr	Gln	Tyr	Gln	His	Glu	Ser	Arg	Ser	Glu
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Gln	Glu	Ala	Ile	His	Asn	Arg	Gln	Glu	Ile	Arg	Arg	Asn	Glu	Glu	Glu
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Val	Ser	Lys	Gly	His	Arg	Thr	Asp	Val	Phe	Lys	Ala	Glu	Met	Met	Ser
				85					90					95	
His	Leu	Glu	Lys	His	Thr	Glu	Glu	Thr	Asn	Gln	Ala	Ser	Gln	Phe	Arg
			100					105					110		
Gln	Tyr	Val	Gln	Glu	Thr	Val	Ile	Asp	Thr	Pro	Glu	Asp	Glu	Glu	Ile
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Gln	Glu	Asn	Phe	Leu	Tyr	Ser	Asp	Lys	Glu	Thr	Thr	Thr	Pro	Ala	Lys
145					150					155					160
Cys	Ile	Lys	Ile	Glu	Asn	Asp	Ser	Glu	Glu	Thr	Leu	Lys	Pro	Ser	Ser
				165					170					175	
Ala	Met	Gly	Thr	Ser	Ser	Tyr	Thr	Ser	Ala	Arg	Gln	Ser	Lys	Glu	Thr
			180					185					190		
Ser	Thr	Ser	Ser	Tyr	Ser	Asn	His	Ser	Leu	Thr	Ser	Thr	Ile	Leu	Ala
		195				200						205			
Gln	Glu	Lys	Gly	Thr	Pro	Ser	Gly	Lys	Met	Glu	Glu	Phe	Pro	Pro	Pro
	210					215					220				
Pro	Pro	Asp	Val	Phe	Gln	Thr	Pro	Met	Asp	Val	Thr	Ala	Phe	Ser	Gln
225					230					235					240
Ser	Pro	Glu	Phe	Pro	Ser	Pro	Pro	Arg	Arg	Leu	Pro	Met	Pro	Arg	Asp
				245					250					255	
Val	Tyr	Ser	Lys	Gln	Arg	Asn	Leu	Tyr	Glu	Leu	Asn	Arg	Leu	Tyr	Arg
			260					265					270		

His	Ile	His	Pro	Glu	Leu	Arg	Lys	Asn	Leu	Glu	Lys	Asp	Tyr	Ile	Ser	275	280	285
Glu	Val	Ser	Glu	Ile	Val	Ser	Ser	His	Ile	Asn	Ser	Gly	Asn	Ser	Ile	290	295	300
Ser	Ala	Gly	Val	Gln	Gln	Ala	Arg	Tyr	Val	Phe	Glu	Asn	Thr	Asn	Asp	305	310	315
Ser	Ser	Gln	Lys	Asp	Leu	Ser	Ser	Glu	Arg	Glu	Asn	Leu	Glu	Trp	Asp	325	330	335
Glu	Ile	Leu	Lys	Gly	Glu	Val	Gln	Ser	Ile	Arg	Trp	Ile	Phe	Glu	Asn	340	345	350
Gln	Pro	Leu	Asp	Ser	Ile	Asn	Gln	Gly	Phe	Thr	Asp	Glu	Ala	Tyr	Thr	355	360	365
Ser	Lys	Gly	Ile	Ala	Asp	Gln	Glu	Leu	Ile	Ala	Gly	Gly	Asp	Val	Lys	370	375	380
Tyr	Thr	Thr	Trp	Met	Phe	Glu	Thr	Gln	Pro	Ile	Asp	Ala	Leu	Gly	Val	385	390	395
Pro	Ser	Ala	Gly	Thr	Glu	Glu	Asn	Thr	Glu	Lys	Ile	Pro	Glu	Leu	Ala	405	410	415
Lys	Gly	Asp	Val	Cys	Thr	Ala	Arg	Trp	Met	Phe	Glu	Thr	Arg	Pro	Leu	420	425	430
Asp	Ser	Met	Asn	Lys	Met	His	Glu	Trp	Glu	Asp	Glu	Thr	Ala	Ser	Thr	435	440	445
Phe	Ile	Lys	Asp	Ile	Thr	Gly	Gly	Asp	Val	Lys	Thr	Val	Arg	Tyr	Met	450	455	460
Phe	Glu	Thr	Gln	Gln	Leu	Asp	Gln	Leu	Gly	Gln	Leu	His	Ser	Val	Asp	465	470	475
Glu	Met	Asn	Leu	Leu	Gln	Leu	Arg	Ser	Glu	Leu	Lys	Glu	Ile	Lys	Gly	485	490	495
Asn	Val	Lys	Arg	Ser	Ile	Lys	Cys	Phe	Glu	Thr	Gln	Pro	Leu	Tyr	Val	500	505	510
Ile	Arg	Asp	Gly	Ser	Gly	Gln	Met	Leu	Glu	Ile	Lys	Thr	Val	Gln	Arg	515	520	525
Glu	Asp	Ile	Glu	Lys	Gly	Asp	Val	Arg	Thr	Ala	Arg	Trp	Met	Phe	Glu	530	535	540
Thr	Gln	Pro	Leu	Asp	Thr	Ile	Lys	Gln	Asp	Ile	Thr	Glu	Ile	Lys	Val	545	550	555
Val	Arg	Gly	Ile	Ser	Met	Glu	Glu	Asn	Val	Lys	Gly	Glu	Val	Gly	Arg	565	570	575
Ala	Arg	Trp	Leu	Phe	Glu	Thr	Gln	Pro	Leu	Glu	Lys	Ile	Lys	Glu	Glu	580	585	590
Ser	Gly	Glu	Ala	Val	Leu	Lys	Thr	Glu	Ala	Val	Val	Gly	Ile	Asp	Val	595	600	605
Ser	Lys	Lys	Cys	Trp	Met	Phe	Glu	Thr	Gln	Pro	Leu	Asp	Thr	Leu	Lys	610	615	620
Gln	Ser	Pro	Asp	Thr	Glu	Ser	Val	Ser	Pro	Glu	Glu	Arg	Ile	Gly	Gly	625	630	635
Asp	Val	Lys	Thr	Thr	Lys	His	Leu	Leu	Glu	Thr	Leu	Pro	Ile	Glu	Ala	645	650	655
Leu	Lys	Asp	Ser	Pro	Asp	Val	Gly	Lys	Leu	Gln	Lys	Ile	Thr	Ala	Ser	660	665	670
Glu	Glu	Glu	Lys	Gly	Asp	Val	Lys	His	Gln	Lys	Trp	Val	Phe	Glu	Thr	675	680	685
Gln	Arg	Leu	Glu	Asp	Ile	Arg	Glu	Asp	Lys	Lys	Glu	Tyr	Thr	Gln	Thr	690	695	700
Val	Lys	Leu	Glu	Ala	Val	Asp	Arg	Gly	His	Val	Lys	Asn	Glu	Thr	His	705	710	715
Ile	Phe	Glu	Ser	Asn	Asn	Leu	Ile	Lys	Val	Asp	Ala	Ser	His	Gln	Ile	725	730	735
Glu	Val	Glu	Gly	Val	Thr	Arg	Gly	Thr	Val	Glu	Leu	Asn	Lys	Ser	Leu	740	745	750
Phe	Glu	Thr	Thr	Pro	Leu	Tyr	Ala	Ile	Gln	Asp	His	Leu	Gly	Lys	Tyr			

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His 770	Gln	Val	Lys	Thr	Val	Gln	Gln	Glu	Glu	Ile	Val	Arg	Gly	Asp	Val				
Arg 785	Ser	Cys	Arg	Trp	Leu	Phe	Glu	Thr	Arg	Pro	Ile	Asp	Gln	Phe	Asp 800				
Glu	Ser	Leu	His	Lys 805	Phe	Gln	Ile	Ile	Arg 810	Gly	Ile	Ser	Ala	Gln	Glu				
Ile	Gln	Ala	Gly 820	Asn	Val	Lys	Ser	Ala	Arg 825	Trp	Leu	Phe	Glu	Thr	Gln				
Pro	Leu	Asp 835	Ser	Ile	Lys	Tyr	Phe 840	Ser	Asn	Val	Glu	Glu	Thr	Asp	Ser				
Lys	Thr	Glu	Gln	Ser	Thr	Asp 855	Ile	Val	Lys	Gly	Asp 860	Val	Lys	Thr	Cys				
Lys 865	Trp	Leu	Phe	Glu	Thr 870	Gln	Pro	Met	Glu	Ser	Leu	Tyr	Glu	Lys	Ala 880				
Ser	Leu	Met	Thr	Asn 885	Ser	Glu	Asp	Ile	His 890	Lys	Gly	Asp	Val	Arg	Thr 895				
Cys	Met	Trp	Leu 900	Phe	Glu	Thr	Gln	Pro 905	Leu	Asp	Ala	Ile	Lys	Asn	Asp				
Ser	Glu	Ala 915	Thr	Val	Lys	Leu	Gln 920	Thr	Val	Lys	Gln	Glu	Glu	Ile	Gln				
Gly	Gly	Asp 930	Val	Arg	Thr	Ala	Cys 935	Leu	Leu	Phe	Glu	Thr	Glu	Asn	Leu				
Asp 945	Asn	Ile	Gln	Gly	Gly 950	Glu	Gly	Lys	Glu	Thr	Lys	Pro	Val	Glu	Met 960				
Asp	Ile	Glu	Ser	Gly 965	Asp	Val	Ser	Gly	Met 970	Lys	Tyr	Lys	Phe	Glu	Asn 975				
Gln	Ser	Leu	Asp 980	Ser	Ile	Ser	Cys	Ser 985	Ser	Glu	Asn	Val	Leu	Asn	Lys				
Ile	Lys 995	Thr	Leu	Lys	Ile	Glu	Asp 1000	Ile	Gln	Lys	Gly	Asn	Val	Leu	Asn				
Cys 1010	Arg	Trp	Leu	Phe	Glu	Asn 1015	Gln	Pro	Ile	Asp	Met	Ile	Lys	Glu	Asn				
Gln 1025	Glu	Gly	Asp	Gly	Leu 1030	Val	Lys	Thr	Val	Thr	Asp	Ile	Gln	Gly	Gly 1040				
Asp	Val	Arg	Lys	Gly 1045	Cys	Phe	Ile	Phe	Glu	Thr	Phe	Ser	Leu	Asp	Glu				
Ile	Lys	Asp	Glu 1060	Ser	Asp	Val	Ile	Ser	Thr 1065	Arg	Gln	Thr	Asn	Thr	Glu				
Glu	Val 1075	Ile	Lys	Gly	Asp	Val	Lys 1080	Ser	Tyr	Lys	Met	Leu	Phe	Glu	Thr				
Gln	Pro 1090	Leu	Tyr	Ala	Ile	Gln 1095	Asp	Gln	Glu	Gly	Phe	Tyr	His	Glu	Val				
Thr 1105	Thr	Val	Lys	Lys	Glu 1110	Glu	Thr	Ile	His	Gly	Asp	Val	Arg	Gly	Thr 1120				
Arg	Trp	Leu	Phe 1125	Glu	Thr	Lys	Pro	Leu	Asp	Ser	Ile	Asn	Ala	Ser	Glu				
Asp	Val	Tyr	Ile 1140	Ile	Lys	Ser	Val	Thr	Gln	Glu	Asp	Ile	Gln	Lys	Gly				
Asp	Val 1155	Ser	Ser	Val	Arg	Tyr	Arg 1160	Phe	Glu	Thr	Gln	Pro	Leu	Asp	Met				
Ile 1170	Ser	Asp	Lys	Ser	His	Asn 1175	Ile	Met	Pro	Thr	Ile	Asp	His	Ile	Gln				
Gly 1185	Gly	Asn	Val	Gln	Met 1190	Asn	Lys	Gln	Leu	Phe	Glu	Ser	Glu	Gly	Gly 1200				
Asp	Lys	Lys	Asn 1205	Tyr	Val	Arg	Thr	Val	Ser	Ile	Asn	Glu	Ile	Gln	Lys				
Gly	Asn	Val 1220	Lys	Thr	Ser	Thr	Trp	Leu 1225	Phe	Glu	Thr	His	Ser	Ile	Asp				
Glu	Leu 1235	Gly	Glu	Val	Ser	Thr	Tyr 1240	Glu	Asn	Ile	Lys	Thr	Val	Thr	Gln				

Glu Asp Val Gln Lys Gly Asp Val Lys Gln Ala Val Trp Leu Phe Glu  
 1250 1255 1260  
 Asn Gln Thr Leu Asp Ser Ile Lys Glu Leu Asp Glu Ser Asp Thr Lys  
 1265 1270 1275 1280  
 Ile Thr Lys Glu Glu Ile Pro Pro Ser Asp Val Lys Thr Thr Thr Trp  
 1285 1290 1295  
 Leu Phe Glu Thr Thr Pro Ile His Glu Phe Asn Glu Thr Arg Ile Glu  
 1300 1305 1310  
 Lys Glu Glu Ile Ile Gly Lys Ser Ile Lys Glu Thr Leu Glu Asp Leu  
 1315 1320 1325  
 Tyr Ser Gln Arg Val Val Glu Ala Pro Gly Ile Ile Ile Glu Ala Asp  
 1330 1335 1340  
 Glu Val Gly Asp Val Arg Met Ala Lys Tyr Lys Leu Met Asn Gln Arg  
 1345 1350 1355 1360  
 Thr Pro Glu Ile Gln Lys Glu Glu Val Ile Arg Ala Asp Leu Gly Asn  
 1365 1370 1375  
 Ile Met Met Asn Leu Leu Ser Gln Arg Asp Cys Thr Lys Lys Glu Ile  
 1380 1385 1390  
 Phe Ile Ser Glu Glu Glu Lys Gly Asn Val Asn Phe Thr Lys Thr Gln  
 1395 1400 1405  
 Leu Leu Asn Arg Ser Met Glu Phe His Ala Glu Lys Glu Glu Ile Val  
 1410 1415 1420  
 Arg Gly Asp Val Lys Gln Ala Ile Gln Lys Leu Phe Ser Glu Glu Arg  
 1425 1430 1435 1440  
 Cys Ala Lys Arg Gly Ile Leu Ile Gln Glu Asp Glu Lys Gly Asp Val  
 1445 1450 1455  
 Asn Met Thr Ile Tyr Cys Leu Leu His Glu Asn Ala Gly Asp Lys Thr  
 1460 1465 1470  
 Lys Arg Glu Asp Ile Leu Gly Gly Asp Val Arg Arg Thr Ile His Asn  
 1475 1480 1485  
 Leu Leu Ser Ser Ala Ser Asn Asp Lys Ile Ser Glu Arg Thr Lys Ile  
 1490 1495 1500  
 Asp Ala Ser Glu Arg Gly Asn Val Gln Phe Phe Thr Thr Cys Ile Glu  
 1505 1510 1515 1520  
 Thr Gly Ala Leu Asp Tyr Leu Lys Gln Leu Gln Thr Gly Ser Asn Glu  
 1525 1530 1535  
 Thr Leu Thr Ala Arg Lys Gln Glu Gly Glu Glu Glu Ile Ile Gly Gly  
 1540 1545 1550  
 Asp Val Glu Gly Thr Lys Phe Leu Leu Lys Lys Arg Gln Ser Ser Ile  
 1555 1560 1565  
 Glu Arg Thr Val Ser Glu Thr Asp Ile Ile Pro Gly Asp Val Arg Asn  
 1570 1575 1580  
 Thr Val Lys Val Phe Met Thr Glu Pro Gln Ser Ala Ser Phe Lys Thr  
 1585 1590 1595 1600  
 Ala Lys Glu Glu Ile Val Lys Gly Asp Leu Lys Ser Thr Leu Asn Ser  
 1605 1610 1615  
 Leu Asn Gln Ala Met Asn Gln Lys Val Val Ala Lys Thr Glu Asp Ile  
 1620 1625 1630  
 Met Lys Asp Asp Lys Ala Ala Ile Leu Lys Ser Leu Lys Glu Ser Gly  
 1635 1640 1645  
 Gly Arg Gln Lys Glu His Lys Gln Ser Ala Ser Ile Ser Ser Asp Ile  
 1650 1655 1660  
 Gly Gln Ala Ile Glu Cys Leu Glu Lys Ala Thr Asn Thr Arg Thr Glu  
 1665 1670 1675 1680  
 Ile Leu Lys Lys Glu Leu Ile Leu Asp Asp Leu Lys Thr Ser Leu Arg  
 1685 1690 1695  
 Ser Leu Lys Glu Glu Gln Tyr Ser Phe Lys Glu Val Gly Lys Gln Gly  
 1700 1705 1710  
 Met Val Lys Asp Val Leu Gly Phe Ser Glu Arg Gln Glu Leu Gly Ile  
 1715 1720 1725  
 His Pro Ala Ala Val Gln Arg Glu Lys Lys Ser Leu Leu Gln Pro Val

1730	1735	1740
Pro Gly Pro Cys Glu Pro Ala Ile Arg Gln Gln Ala Gly Pro Gly Pro		
1745	1750	1755
Leu Asp Glu Ala Thr Gln Lys Ser Cys His Arg Ser Leu Thr Glu Glu		1760
	1765	1770
Arg Thr Glu Ala Asn Leu Pro Lys Ala Pro Lys Gly Thr Val Lys Ile		1775
	1780	1785
Val Ile Asp Arg Glu Gln Asn Asn Asp Ala Leu Glu Lys Ser Leu Arg		1790
	1795	1800
Lys Met Ser Asn Ser Glu His Arg Ala Met Lys Asn Val Leu Asp Met		1805
	1810	1815
Gly Asp Arg Arg Gly Val Trp Thr Glu Ser Lys Glu Cys Leu Cys Ser		1820
1825	1830	1835
Asp Asp His Met Ser Lys Tyr Val Ser Ala Ser Met Ser Arg Lys Lys		1840
	1845	1850
Ser Leu Lys Thr Lys Glu Ser Glu Asn Val Arg Glu Ser Lys Asp Asp		1855
	1860	1865
Val Ser Ser Thr Gln Ser Val Asp Lys Thr Phe Arg Lys Gln Gln Thr		1870
	1875	1880
Gln Asn Cys Glu Leu Gly Lys Asp His Gln Lys Ser Gln Phe Gln Asp		1885
	1890	1895
Ser Tyr Ala Lys Asn Gln Lys Asn Thr Gln Asn Ile Ser Met Ser Ala		1900
1905	1910	1915
Glu Thr Gln Ser Tyr Arg Pro Asp Pro Thr Gln His Pro Val Ser Asn		1920
	1925	1930
Pro Ala Gly Glu Thr Leu Glu Met Thr Arg Asp Phe Gln Lys Gln Ala		1935
	1940	1945
Leu Ile Arg Gln Glu Lys Gln Asn Ser Asn Lys Asp Met Arg Lys Asn		1950
	1955	1960
Asp Met Gly Leu Gln Pro Leu Pro Val Gly Lys Asp Ala His Ser Ala		1965
1970	1975	1980
Pro Gly Val Thr Val Ser Gly Lys Asn His Lys Arg Thr Gln Ala Pro		1985
1990	1995	2000
Asp Lys Lys Gln Arg Ile Asp Val Cys Leu Glu Ser Gln Asp Phe Leu		2005
	2010	2015
Met Lys Thr Asn Thr Ser Lys Glu Leu Lys Met Ala Met Glu Arg Ser		2020
	2025	2030
Phe Asn Pro Val Asn Leu Tyr Pro Asp Cys Gly Val Lys Glu Asn Glu		2035
	2040	2045
Asp Ala Leu Pro Pro Pro Ser Pro Pro Pro Pro Pro Ser Asn Ala		2050
	2055	2060
Ser Ser Glu Ile Glu Phe Pro Leu Pro Pro Pro Pro Pro Ile Met Leu		2065
	2070	2075
Leu Pro Glu Lys Asn Glu Phe Pro Pro Ser Ser Pro Thr Glu Lys Ser		2080
	2085	2090
Arg Ala Glu Leu Glu Ser Leu Pro Thr Leu Pro Leu Pro Pro Pro Pro		2095
	2100	2105
Gly Asp Glu Lys Ser Asp Gln Glu Cys Leu Pro Thr Ser Leu Pro Pro		2110
	2115	2120
Pro Pro Pro Thr Ala Pro Ser Gln Pro Ala His Leu Leu Ser Ser Ser		2125
	2130	2135
Val Leu Glu His His Ser Glu Ala Phe Leu Gln Gln Tyr Ser Arg Lys		2140
2145	2150	2155
Glu Thr Leu Asp Ser His Gln Leu His Ser Gln Ala Lys Ile Leu Thr		2160
	2165	2170
Gly Lys Ser Pro Pro Pro Thr Leu Pro Lys Pro Lys Leu Pro Glu Arg		2175
	2180	2185
Ile Lys Ala Lys Met Ser Gln Asp Ser Pro Ser Gly Glu Leu Glu Arg		2190
	2195	2200
Ser Leu Ser Asp Val Glu Ile Lys Thr Thr Leu Ser Lys Asp Gln Lys		2205
	2210	2215
		2220

Ser Ser Leu Val Ala Glu Ser Arg Glu His Thr Glu Ala Lys Gln Glu  
2225 2230 2235 2240  
Val Phe Arg Lys Ser Leu Gly Arg Lys Gln Leu Ser Ile Ser Ser Ala  
2245 2250 2255  
Asn Ser Leu Ser Gln Thr Val Pro Glu Ile Pro Ala Pro Lys Glu Lys  
2260 2265 2270  
Gln Thr Ala Pro Leu Val Lys Ser His Ser Phe Pro Ser Gly Ser Glu  
2275 2280 2285  
Gln Gln Ser Pro Lys Pro Tyr Met Arg Lys Phe Lys Thr Pro Leu Met  
2290 2295 2300  
Ile Ala Glu Glu Lys Tyr Arg Gln Gln Arg Glu Glu Leu Glu Lys Gln  
2305 2310 2315 2320  
Arg Arg Glu Ser Ser Cys His Ser Ile Ile Lys Thr Glu Thr Gln His  
2325 2330 2335  
Arg Ser Leu Ser Glu Lys Glu Lys Glu Thr Glu Leu Gln Lys Ala Ala  
2340 2345 2350  
Glu Ala Met Ser Thr Pro Arg Lys Asp Ser Asp Phe Thr Arg Ala Gln  
2355 2360 2365  
Pro Asn Leu Glu Pro Lys Ser Lys Ala Val Ile Ala Ser Glu Cys Ser  
2370 2375 2380  
Glu Ser Gln Leu Ser Thr Ala Ser Ala Leu Thr Val Ala Thr Glu Arg  
2385 2390 2395 2400  
Leu Gln His Val Leu Ala Ala Ser Asp Asp Lys Leu Thr Leu Arg Arg  
2405 2410 2415  
Glu Gly Thr Gln Asn Ser Ser Asp Thr Leu Gln Ser Lys Thr Ala Cys  
2420 2425 2430  
Glu Ile Asn Gln Ser His Lys Glu Cys Arg Thr Glu Gln Thr Phe Glu  
2435 2440 2445  
Gln His Val Glu Lys Leu Pro Phe Pro Gln Thr Lys Pro Ile Ser Pro  
2450 2455 2460  
Ser Phe Lys Val Lys Thr Ile Arg Leu Pro Ala Leu Asp His Thr Leu  
2465 2470 2475 2480  
Thr Glu Thr Asp Leu Ser Ser Glu Arg Arg Val Lys Gln Ser Glu Ile  
2485 2490 2495  
Asp Val Gln Thr Ser Thr Lys Glu Met Asn Lys Glu Ile Lys Lys Thr  
2500 2505 2510  
Glu Val Ser Thr Gln Cys Asp Asn Lys Gln Ser Val Ala Glu Lys Tyr  
2515 2520 2525  
Phe Gln Leu Pro Lys Thr Glu Lys Arg Val Thr Val Gln Met Pro Lys  
2530 2535 2540  
Asp Tyr Ala Ala Lys Ser His Gln Ser Lys Leu Gln Thr Val Pro Lys  
2545 2550 2555 2560  
Lys His Gly Gly Leu Gly Glu Phe Asp Arg Gly Asn Val Leu Gly Arg  
2565 2570 2575  
Glu Gly Lys Asn Gln Asp Ser Ser Met Ser Ser Thr Lys Glu Ser Arg  
2580 2585 2590  
Val Ile Val Glu Arg Lys Gln Glu His Leu Gln Asp Gln Ser Val Pro  
2595 2600 2605  
Arg Leu Val Gln Gln Lys Ile Ile Gly Glu Ser Leu Asp Ser Arg Val  
2610 2615 2620  
Gln Asn Phe Gln Gln Thr Gln Thr Gln Thr Ser Arg Ile Glu His Lys  
2625 2630 2635 2640  
Glu Leu Ser Gln Pro Tyr Ser Glu Lys Lys Cys Leu Arg Asp Lys Asp  
2645 2650 2655  
Lys Gln Gln Lys Gln Val Ser Ser Asn Thr Asp Asp Ser Lys Gln Glu  
2660 2665 2670  
Ile Thr Gln Lys Gln Ser Ser Phe Ser Ser Val Arg Glu Ser Gln Gln  
2675 2680 2685  
Asp Gly Glu Lys Cys Ala Ile Asn Ile Leu Glu Phe Leu Arg Lys Arg  
2690 2695 2700  
Glu Glu Leu Gln Gln Ile Leu Ser Arg Val Lys Gln Phe Glu Ala Asp

2705		2710		2715		2720
Ser Asn Lys Ser	Gly Leu Lys Thr Phe Gln Thr Leu Leu Asn Ile Ala					
	2725		2730		2735	
Pro Val Trp Leu	Ile Ser Glu Glu Lys Arg Glu Tyr Gly Val Arg Val					
	2740		2745		2750	
Ala Met Glu Asn Asn	Leu Glu Lys Val Lys Glu Glu Ile Ile His Ile					
	2755		2760		2765	
Lys Thr Gln Ala Glu	Glu Met Leu Val His Cys Glu His Val Ile Arg					
	2770		2775		2780	
Thr Ala Met Met Ala	Ser Gln Thr Gly Lys Gln Lys Asp Lys Pro Thr					
	2785		2790		2795	2800
Asn Leu Asn Glu Met	Pro Leu Lys Val Ser Asn Val Asn Leu Ser Ser					
	2805		2810		2815	
His Lys Gly Thr Glu	Gln Lys Glu Ser Lys Ile Val Glu Glu Lys Leu					
	2820		2825		2830	
Ala Ser Arg Gln Val	Ala Thr His Ser Glu Ala Ala Thr His Asn Pro					
	2835		2840		2845	
Ala Lys Thr Tyr Gln	Glu Ala Lys Gly Asp Asp Ser Lys Met Ala Pro					
	2850		2855		2860	
Pro Ser Leu Lys Thr	Arg Pro Pro Ser Pro Thr Phe Ile Thr Ile Glu					
	2865		2870		2875	2880
Ser Thr Ala Arg Arg	Ala Glu Thr Ser Thr Lys Ser Glu Leu Ser Gln					
	2885		2890		2895	
Ser Pro Lys Asn Asn	Ser Cys Val Glu Pro Leu Pro Arg Arg Pro Met					
	2900		2905		2910	
Glu His Thr Ser Arg	Leu Pro Arg Thr Ser Thr Ser Pro Ser Pro Pro					
	2915		2920		2925	
Arg Ser Arg Ser Glu	Gln Leu Val Arg Leu Lys Asp Thr Thr Ala Arg					
	2930		2935		2940	
Leu Ala Lys Gly Thr	Ile Pro Cys Ser Pro Gly Thr Pro Val Pro Val					
	2945		2950		2955	2960
Val Glu Lys Arg Ser	Glu Val Val Met Ser Pro Ala Thr Leu Arg Arg					
	2965		2970		2975	
Gln Ile Lys Ile Glu	Ser Arg Gly Gly Asp Ser Pro Pro Thr Ile Thr					
	2980		2985		2990	
Ile Pro Val Ser Val	Asn His His Val Val Ser Gly Ser Phe Arg Glu					
	2995		3000		3005	
Ser Val Asp Ala Gln	Glu Ala Val Lys Lys Thr Glu Lys Thr Glu Thr					
	3010		3015		3020	
Tyr Val His Lys Asp	Lys Lys Asn Ser Val Ser Ser Ala Met Pro Glu					
	3025		3030		3035	3040
Thr Glu Ser Tyr Asp	Ala Val Glu Ile Ile Arg Lys Val Glu Gly Pro					
	3045		3050		3055	
His Leu Ser Glu His	Arg Glu Arg Phe Glu Ala Thr Asn Gln Thr Val					
	3060		3065		3070	
Gln Met Ala Glu His	Phe Leu Asn Gly His Glu Asn Glu Val Asn Arg					
	3075		3080		3085	
Trp Phe Arg Glu Phe	Glu Asn Gly Pro Val Phe Gly Ala Lys Thr Glu					
	3090		3095		3100	
Arg Arg Ala Tyr Ala	Asn Gly Glu Ile Asn His Asn Met Lys Gln Glu					
	3105		3110		3115	3120
Ser His Thr Phe Cys	Lys Glu Glu Phe Gly Leu Glu Ser Ser Glu Thr					
	3125		3130		3135	
Ala Asn Phe Thr Gly	Phe Ser Tyr Arg His Pro Arg Glu His Arg Ala					
	3140		3145		3150	
Lys Ala Pro Ala Thr	Gln Pro Arg Val His Ser Glu Ala Arg Ala Leu					
	3155		3160		3165	
Asn Glu His Phe Leu	Ser Val Asp Ala Phe Asp Ser Gln Ile Val Glu					
	3170		3175		3180	
Ser Gln Val Ala Thr	Ser Ser Ser Arg Ser Ser Glu Ala Gly Arg Ser					
	3185		3190		3195	3200





agtgaagcta	gaagcagtg	acagagggca	tgtgaagaac	tatacacata	tcttcgaatc	2400
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